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The Cultivation of Asparagus in France.

IN no other special culture do the French surpass to such a degree the rest of the world as in that of Asparagus. Not only is the best Asparagus raised in France better than the best of any other country, but the quality of the French crop as found in the French markets, not only in Paris, but all over the country, is far superior in quality to the Asparagus sold in the markets of other countries.

The excellence of French Asparagus is secured by the most careful and systematic cultivation, and as the French methods differ so materially from ours, especially in the practice of allowing the crowns to freeze in winter, while in this country it is an almost universal custom to protect them by a heavy mulch of manure, and in the summer fertilization of the plants, that we have asked Monsieur Henri L. de Vilmorin, who speaks of French vegetables and French methods of cultivation with the fullest knowledge of the subject and the highest authority, to describe for the benefit of our readers the methods by which the best French Asparagus is produced. The following description from his pen will be read with interest by American gardeners:

Whatever is worth doing at all is worth doing well. To no subject can that old saying be more justly applied than to Asparagus-growing, as not only is proper care a necessary condition of success, but the superiority of well grown to poorly grown produce is perhaps greater in the case of Asparagus than in any other vegetable. Both the eating quality and the market value of a bunch of Asparagus increase very rapidly with the size and beauty of the individual shoots that go to form it.

Asparagus officinalis, a native of south-western Europe, is perfectly hardy all through France and Great Britain, and will prove so over nearly the whole of the United States, where, with proper care, it should be possible to raise as fine specimens as any that are grown in Europe. In fact, Asparagus being a spring vegetable, the crop can be ready and even over everywhere before the summer heat and drought set in.

Planting the roots far apart and not too deep, and then manuring heavily and repeatedly, are the great points in the most successful Asparagus-gardens in France; and these points are, in my opinion, those that need to be brought most forcibly before the American Asparagus-growers.

Any soil which is not stiff, adhesive clay, nor pure, dry chalk, can be rendered proper for Asparagus-culture by draining, trenching and manuring. It is necessary that a depth of from one foot to a foot and a half of perfectly drained soil be secured under the surface, but this is amply sufficient, since Asparagus develops no tap-roots. Light sandy soil is quite good if properly manured.

In France it is usual to trench and manure in the fall with common stable-manure the plot which is to be planted out to Asparagus in the spring. In very light soil cow-manure is preferred. In March the rows or beds are marked out, the position of each set being indicated by a small stick placed in the ground. One or two-year-old seedlings are generally used as sets. They are never planted at a less distance than two feet each way. For exhibition purposes plants are set three and even four feet apart.

At the place where each little stick stood a small conical heap of compost or mould from thoroughly decomposed manure is made, and the centre of the crown of the set is placed on top of it, the fleshy roots being spread, radiating in all directions down the sides of the small hill. The roots are then covered with additional compost or mould, one or two large handfuls being used on each set; the roots only, and not the crown, being so covered, the hills are made larger, but not higher, by the process. Loose soil is then filled in between the hills and level with the crowns of the sets. This soil has been prepared by scraping the surface of the beds three to four inches deep before marking out the place for the sets and by heaping the loose soil in the walks between the beds or the rows.

After the first summer and fall, when only weeding, and, perhaps rarely, watering has to be done, the surface soil is in the month of October scraped off between the plants and made into a ridge in the walks, as was done before planting. The roots are by this means brought close to the surface and submitted to the action of cold air and frost, which, at least in Europe, seem to benefit them rather than otherwise. Only experience can show whether the same system would be equally advisable for America, where the winters are so much colder.

Manure is spread the second spring on the roots mostly in the shape of mould from town scrapings or from decomposed stable manure. Common salt may be added with good results in places where it is deficient in the soil. Then the loose soil is again filled in on top of the manure and between the plants so as to make the surface even.

The next year the same processes are repeated, but the loose soil is heaped to a greater height, in a conical hill one foot high, over each Asparagus plant, as from this, the third spring, one or two shoots can be cut from each well-established plant. The hill formed on top of the crown is intended to bleach the shoots and to force them to become longer. After the cutting season is over (which should be about May 15th on the year of the maiden crop and June 15th on succeeding years) the mounds of soil are to a great extent scattered and spread in between the plants, all the shoots produced later being allowed to grow and develop into leafed stems.

Afterward the routine of the cultivation remains the same, manure being added at least every second year, and either in the fall, in winter or in early spring, in fact at any period between the time when the surface soil is scraped out and the time for spreading it on again. The number and beauty of the shoots go on increasing for the three or four first crop years, and then the plantation can be kept at its best for five or six years more by liberal and repeated manuring.

Great care is exercised now, in France, in gathering Asparagus-shoots to break them clean at the point of insertion on the crown, and not to cut or saw them off. The latter practice had the two-fold fault of leaving on the plant old stumps which decayed and often induced rotting of the crown itself, and besides it frequently occurred that undeveloped or partially developed buds were injured by the knife and destroyed. At the present day the most approved practice consists in throwing back with one hand the soil of the hill, while holding the shoot with the other hand and in following it down to its base, when it is easily broken off clean by bending it on the side on which it was laid bare. The hill is then immediately formed again as before.

All this care and labor might justly be considered excessive were 200 or 300 shoots required to make a decent dish, but they can well be afforded where fifty make a very large one.

The taste for almost white asparagus, with only one inch or so of purplish top, is prevalent in France, but the shoots may be allowed to grow a little longer and greener when they are preferred so.

It should be added that asparagus, to be at its best, must be gathered only a few hours before it is cooked. In most cities and towns there seems to be an unlimited demand for asparagus, fine, medium, and even poor. Still good fresh specimens always command a much higher price than small wiry ones, or than asparagus brought from a distance.

The general ignorance which prevails in this country with regard to trees, and especially with regard to the simplest phenomena of their lives, is always a matter of surprise to the few persons who study the different phases of tree-life and look on the trees they pass in their daily walks, or in longer journeyings, as old friends and companions. We recall the instance of a person of more than ordinary intelligence and cultivation, possessing the instincts of a naturalist, shown in an unusual love of animals and in a fondness for studying the habits of bees, ants and other insects, and who, moreover, was bred in the country. This person, when past middle life, learned for the first time that Oak-trees had blossoms and that the cones of the Spruce had grown from flowers. Trees had been taken as a matter of course, and passed by year after year without a thought bestowed upon the secrets of their existence. The individual flowers of the Oaks and Walnuts, the Beeches and Alders, the Birches and Hornbeams, the Pines and Spruces, had never been seen, and the beauty of their marvelous structure had never been so much as dreamed of.

That ignorance of this sort is not unusual is shown by the fact that we find in common use the terms "flowering trees" and "forest-trees" employed as if some trees, like the Apple or the Locust, produced flowers and others growing in the forest did not, and this by authors from whom better things might naturally be expected. All this only goes to prove that we in America need more instruction about our trees than we are in the way of obtaining. Some accurate knowledge of the common trees which surround our homes and make up our forests should form part of the mental equipment of every educated man and woman. Knowledge of this character adds immensely to the pleasures of life. Once gained it is never lost; and the field is never exhausted, for there is always something new to learn about a tree.

This is a subject of wide-spread and practical importance. Trees collectively, that is when they form forests, have an important influence upon the destiny of the human race. Americans are destroying their forests with a recklessness unknown to any other people. This recklessness is the result, in a large measure, of ignorance, and if the value of our forests is ever really understood it will be through the intelligence of the individual trained to appreciate them. How can this intelligence, which, if once acquired, will, perhaps, eventually make the protection of forests possible through wise and far-seeing legislation, be developed? There is certainly no more practical way to begin than by teaching the children of the country something of trees. Knowledge in such matters, especially if acquired early, begets affection, and affection for the individual tree as a tree once fixed, it will be a comparatively easy matter to build up in a community, trained from childhood to love trees, an intelligent interest in the forest in its practical relations to humanity.

Field Notes from the Colorado Desert.

ON the 15th of September I left San Diego by rail for Yuma, Arizona, to make botanical collections in the region generally known as the Colorado Desert, in south-eastern California. At Yuma I found that the season had been slightly drier than usual, and there was scarcely any vegetation except along the banks of the Colorado River. I had the pleasure of experiencing one of the heaviest rains of the season, a brisk shower that lasted about half an hour, accompanied by considerable wind.

Opuntia tessellata was fruiting on the hills near Yuma, and I have since found it in various portions of the desert. The fruit is small, dry, with comparatively few large seeds. This and one or two other species of the same genus were the only Cacti seen on either bank of the river, except a few transplanted in gardens and a single beautiful plant of Mamillaria, found on the sandstone hills south of Fort Yuma, in San Diego County, California.

From El Rio Station, on the Southern Pacific Railway, I walked southward over the hills bordering the Colorado River to Hanlon's Ranch, better known in former times as Hanlon's Ferry. The old station-house, on a rocky bluff at what was once the ferry landing, is now over a mile from the river bank, the river having cut its way to the eastward. This new-made land is subject to an annual overflow and is extremely fertile. It is grown up to a forest of Cottonwoods, Willows and Mesquite-trees of magnificent proportions, and the growth of underbrush and other vegetation is very luxuriant.

Mr. Hall Hanlon, one of the few remaining pioneers of early days, since the advent of the railroad has turned his attention to stock-raising and horticulture. He has been the first to demonstrate the practicability of cultivating the Date in the Colorado Desert. In 1884 he had fully a hundred Date-trees nearly ready to bear, but, unfortunately, an overflow of the river on his land and a combination of other disasters, nearly destroyed them. The Date comes into blossom in five years from setting on his ranch, and he had a supply of fruit in eight years from the planting of the seed. He has two varieties in bearing now, one with large yellow fruit, and a smaller kind with beautiful, rounder, reddish fruit, which at the time of my visit hung in tempting clusters from the trees. Hundreds of offshoots from his trees he has planted out, and in a few more years he could have one of the most profitable and novel of California orchards, or fruit ranches as they are generally called. Other experiments in the culture of the Date were soon to be made near Yuma, Arizona, in the Gila River Valley, which is very aptly called the Gila Desert to distinguish it from the Colorado Desert that lies west of the Colorado River.

Traveling westward from Fort Yuma I found an almost unbroken, barren plain, destitute of verdure until near Indio, in the north-eastern portion of the region. In the Cargo Muchacho Mountains, where several gold mines are being developed, I found it equally uninteresting from a botanist's point of view, except where the "tailings" and waste water from the quartz mill were allowed to flow. A few grasses, one or two introduced weeds and a number of wild flowers—several new to me—were thus caught out of season.

Indio, and the section of the desert to the westward, is probably the best known portion of the region as far as its botanical resources and horticultural possibilities are concerned. The Washington Palm-trees, on the open plains and on the sides of the mud hills to the northward, form one of the most interesting features in the landscape, since the Californian Fan Palm elsewhere is of a more retiring disposition, seeking the seclusion of rocky and almost inaccessible cañons. Some of the Palms grown in the grounds around the railroad hotel at Indio are of most luxuriant growth—a single leaf almost sufficient to shield a standing man from observation!

On the 1st of October I again set out for the southern borders of the desert with a two-horse team. The reports of the great overflow of the Colorado River, through the New River section, had been confirmed by reports received at Yuma, and it was with a view of securing the consequent vegetation that I undertook this trip. It has been six years since the last great overflow occurred, in 1884, and the chance offered by the June and July overflow was one not to be neglected. La Laguna Maquata, a shallow basin just south of the United States boundary, usually dry, was also reported full of fresh water from the same overflow, and said to be teeming with fish. No water has been known in this lake since 1884 either, and here was another opportunity.

At Mountain Springs we filled all our water-cans, fearing that this might be the last good water we should find, and it proved fortunate that we took the precaution. At Coyote Wells, fifteen miles distant, we found the water unfit for man or beast, but by digging a new well we were able to secure a limited supply of strong alkali water, which we ventured to give our horses. The only feed was some Gietta Grass, about two miles distant from our camp. Proceeding in a southerly direction from Coyote Wells we traveled over a sandy, rolling country to a point in the Maquata Basin between the Cocopah and the main peninsula-range of mountains. The western shores of the lake were dry and strewn with millions of fresh water shells, which encouraged us to expect to find some fresh water. Along the sandy arroyo leading to the lake were numerous beautiful Ironwood-trees, fifteen or twenty feet high, and nearer the shores of the lagoon were bush-like clumps

of Mesquites, around which the sand had blown into mounds or small hills. Nearer the lagoon the Mock Willows (*Pluchea borealis*) gave evidence of fresh water, which could, doubtless, have been obtained at less than twenty feet by digging. *Sesuvium portulacastrum* and a few other saline plants were also very abundant; but these comprised nearly the whole of the vegetation discovered along Maquata's shores.

A beautiful mirage led us away from the actual water, and upon learning its delusive character we became skeptical as to the existence of water in any part of the lake. Although I had often seen this phenomenon on the desert I had never before been led astray. In the evening, however, we were enabled to distinguish the true from the false, and found that the eastern part of the lake, for many miles to the southward, actually contained water. On the mesa west of the lake we made our camp, about three in the afternoon, where there was an abundance of Gietta Grass (*Hilaria rigida*) for our horses. Leaving my companion to care for the team, I started on foot to search for water in the cañons leading down to the desert from the main range of mountains, but failed to discover any up to seven o'clock, when it became too dark to proceed, and I was reluctantly compelled to retrace my steps as best I could. My landmarks, the mountains, were soon indistinguishable, but taking my bearings from the stars I got back to camp soon after eleven o'clock after an eight hours' tramp.

Before sunrise in the morning we were again en route to the lake, and after two hours' travel arrived near the edge of the water. With difficulty I reached the water through the soft mud, and found the water so shallow at that place that I had to dig a small hole before I could dip up any to taste—and then I found it to be nearly as salt as brine!

With our water supply nearly exhausted, the temperature at 105 degrees Fahr., and thirty miles from any sure source of water, we considered it only prudent to return to Coyote Wells while we could. For two days our food had consisted mainly of hardtack, and on our return to Coyote Wells the wind prevented our cooking a good meal until the following afternoon.

From Coyote Wells we have moved to Dos Cabesas, where there is an abundance of water, and we are partially sheltered from the wind and rain. It is necessary to pile rocks on the blankets to keep our bed from blowing away with us, and the wind blew my loaded wagon a considerable distance during the night. The sun is shining brightly as I write, but before I finish this sentence the black clouds hanging over us to the westward will have flung us in the shade again. From tropical heat we now find a fire-place a comfort.

Whether reports concerning New River are equally as trustworthy as those relative to Lake Maquata we hope to decide later, but it is necessary to haul water for fifty miles at least to settle the question, and to be prepared to return if we do not then find it. These are some of the pleasures of botanical exploration in our great arid regions.

Dos Cabesas, Colorado Desert. *C. R. Orcutt.*

Lumbering in Michigan.

SIXTY years ago Michigan was almost entirely a wilderness, and a good portion of it was covered with virgin forests. Nearly all of the southern half of the southern peninsula abounded in deciduous-leaved trees, while north of this were large tracts of Pines and other conifers, or a forest of conifers and deciduous trees mixed in varied proportions, or there were some large areas consisting entirely of deciduous trees.

The pioneer, finding no market for his timber, used a small portion only of the very choicest for his limited needs in building and fencing. He cut and burned, hewing for himself a home out of the forest, making room for cultivated fields in place of trees. Gradually, but slowly, a market was found for timber. At first, only the best cuts of the choicest trees could be sold at any price. In southern Michigan, about the year 1850, I drew for my father many loads of the choicest clear stuff of Whitewood or Yellow Poplar (*Liriodendron Tulipifera*) fifteen miles, where it was sold at $5 per 1,000 feet, and the pay taken in goods at a country store. Even this market was limited, and was found in the Oak-openings. There was not much money in lumbering in those days. The trees, though, had to be got out of the way and made to bring what they would.

It was scarcely more than ten years later (1860) that in the same region farmers had nearly ceased burning log-heaps and had begun to make use of all the timber taken from new land for lumber, rail-fences, fire-wood for themselves or their neighbors or for the nearest village or railway. This was in a country long since noted for its good land and prosperous farmers. In fact, Lenawee County, Michigan, is known to be one of the very best "all-round" counties in the United States for diversified agriculture or mixed husbandry.

In newer portions of the state, many parts of which for some reasons were less suited for agriculture, the removal of the timber has been at a much slower rate. It is now as rare a thing as it was common once to see Hemlock-trees felled and left to rot or burn on the ground, simply to secure the bark for the tannery. The hard wood is now, in 1890, nearly all saved, even in the least settled portions of the state, for lumber, for the railroad or for charcoal. Still there are a few places, remote from market, where the tops, butts and deformed sticks of soft wood or hard wood are not very closely used up, but are allowed to decay on the ground.

When good farming land, or poor land that is covered with desirable timber, has once passed from state control the owner feels that something must be done with the timber very soon to prevent a losing investment. It has usually been the experience of Michigan men that it has not been profitable to hold timber for higher prices, and few people will attempt to hold it simply for the good of the township or state or for posterity, under such circumstances. Had a much larger proportion of the timbered land been held and protected by the Government for a longer time the state would have been much better off in the end. Less timber would have been destroyed, the land that was improved would have been better worked at a greater profit. This is a lesson which should be heeded in the more recently settled portions of the country.

There is too much risk from fire in most places in Michigan to make it wise to hold for a very long time any large amounts of land covered mainly with evergreen trees. Where there are a few evergreens mixed with forests of deciduous trees the risk is very greatly reduced.

The illustration on page 563 shows what remains after fire, following the axe, has run through the woods and consumed the smaller branches. Sometimes the logs are brought together in heaps and burned, or allowed to gradually disappear by a combined process of decay and repeated burning.

Agricultural College, Mich. *W. J. Beal.*

The Lakeside Daisy.

AN interesting item in the botanical record of the season is the finding in Ohio of an Actinella, which seems to have strayed away from its home in the west. Mr. Clarence M. Weed, of the Ohio Experiment Station, gives the following account of the matter, which we take from the *Journal of the Columbus Horticultural Society*. Accompanying the article is a good figure of the plant, *Actinella acaulis*, from a drawing by Miss Freda Detmers.

Early last May while collecting botanical specimens in northern Ohio, on the limestone plains of the Sandusky Peninsula, near Lakeside, I came across many large patches of a very pretty bright yellow flower, which formed by far the most striking element of the local flora. It proved to be *Actinella acaulis*, Nuttall, the ordinary home of which, according to Gray, is found on the "Rocky Mountains and bordering plains and hills, Dakota to Montana, and south to New Mexico, western Nevada and Arizona."

Not only is this particular species a western form, but Actinella as a genus is essentially western. Its representatives occur especially in the rocky prairie and mountainous regions of the extreme western states: Dakota, Montana, Colorado, Texas and New Mexico are the homes of many species. According to Gray's "Synoptical Flora" the only known occurrence of a member of the genus east of the Mississippi River is that of *A. acaulis*, variety *glabra*, which was found many years ago on "an ancient mound at Joliet, Illinois," and its occurrence was said to be "probably adventive."

In northern Ohio *A. acaulis* is thoroughly established, and evidently finds on the barren limestone plains, with their two or three inches of soil, a congenial habitat. Dr. C. E. Bessey tells me that in Nebraska it occurs in a somewhat similar situation, being found on the rocky buttes where there is very little soil.

No one about Lakeside, so far as I could learn, knows anything about the time the plant was introduced. The only reply to my question as to how long the plant had been there was that it had been noticed as long as the speaker had lived there. I have found it nowhere in the region except about Lakeside. The Lake Shore Railroad is about ten miles south of the place and a branch road now runs up. But the latter has

only existed a few years, being constructed long after the plant was present. Just how it made the thousand-mile journey eastward may never be known. But, nevertheless, the beautiful little waif is with us, and forms a very welcome addition to our Ohio flora. It has received the local name of Lakeside Daisy.

If this plant could be successfully cultivated it would make a valuable addition to our list of spring bloomers. The bright yellow blossoms in compact masses, coming so early in the season as they do, would supply a place now vacant.

Notes on the Plum Curculio.

THIS insect is still one of the most serious of our orchard pests. It attacks not only plums, but apples, pears, quinces, peaches and cherries, and disfigures where it does not destroy. Experiments looking to the destruction of this pest have been and are still made in some of the western states, and a good measure of success has attended them. In spraying for the codling moth a large number of the beetles are killed and the fruit is largely protected. Quite early in the season of 1890 I noted, in collecting on the June-berry (*Amelanchier Canadensis*), that many of the half-grown berries had the peculiar crescent mark indicating Curculio. A little beating about gave me a number of specimens of the mature beetle, so that the true culprit was not in doubt. The berries were, many of them, infested by a coleopterous larva, which I did not succeed in bringing to maturity, but which was not this Curculio. I have no real doubt, however, that the pest does breed in the June-berry if its more usual food-supply is scant. I had noticed in previous years that many mature apples showed scars of Curculio crescents, and sometimes even traces of a short gallery, evidently made by a young larva. It has been known that Curculio acts differently in different kinds of fruit, and that while it caused plums to drop, it did not have that effect on apples.

Based on these observations I made a few experiments this past season. I gathered on one day a lot of punctured plums and apples from the ground beneath the trees and placed these in separate jars on moist soil. I gathered from the branches of Apple-trees a number of apples showing many punctures, taking one or two out of a cluster and marking the branches. These plucked apples were separated into two lots—one placed on moist soil and one placed in a dry jar and kept changed as to position so as to prevent rotting. Another lot of apples, further advanced and showing only punctures apparently some days old, was plucked and placed on moist soil.

The apples and plums picked from the ground and placed on moist soil developed all, or nearly all, the larvæ. I believe there could not have been a difference of ten per cent. between punctures and mature larvæ. In some small apples as many as nine full grown larvæ developed! The apples plucked from the tree and placed on moist soil also developed a very large proportion of the mature larvæ. Those placed in the dry jar withered and did not rot, and did not mature a single larva! A fair proportion hatched, but as there was no decay the larva perished.

Of the more advanced apples with older crescents, placed on moist soil, a fair proportion hatched and came to maturity. While the larvæ were developing in my breeding-jars I made periodical examination of my marked branches, picking apples and cutting down on the Curculio crescents. In most cases the eggs never hatched; in some few instances the young larva did make its appearance, only to succumb before it had penetrated very far into the fruit. All the fruit examined which did not drop had not matured a single Curculio larva. It seems to prove that the larva needs a decaying substance to feed upon, and the matter is important in this wise: If all the dropped fruit in an Apple (probably also Pear and Quince) orchard is regularly picked up and destroyed, it would prevent the maturing of any larvæ in such orchards, and, by lessening the number of beetles, would of course lessen next year's damage. The obvious application is to the point so often urged by entomologists—keep the orchards clear of fallen fruit, and begin just as soon as the fruit begins to fall. By far the greatest amount of Curculio injury results from insects bred right at home, and this is especially true in the case of isolated orchards.

Rutgers College. *J. B. Smith.*

The simple and uncombined landscape, if wrought out with due attention to the ideal beauty of the features it includes, will always be most powerful in its appeal to the heart.—*Ruskin.*

New or Little Known Plants.

Solidago speciosa.

NO figure, it appears, has been published before of this handsome Golden-Rod, which is one of the most distinct and best marked of the numerous species which inhabit North America, and which, with the Asters, form the characteristic and the most striking feature of our autumnal flora. *Solidago speciosa* (see page 561) is a stout, smooth plant, with tall stems four to six feet high, and ample, ovate or oval, slightly serrate leaves; those on the lower part of the stem are contracted into long, broad petioles, while those higher up are short-stalked, or nearly sessile, and narrower, or oblong-lanceolate. The heads of bright, canary-colored flowers are crowded in erect racemes, forming a narrow, pyramidal panicle five or six inches long and one and a half or two inches broad.

Solidago speciosa is scattered from Canada and eastern New England to Minnesota, Arkansas and the mountains of North Carolina. It inhabits the borders of woods and copses in rich, rather moist soil. It is not a very common plant, and in New England it is one of the rarest of the Golden-Rods. Our illustration is made from a wild plant collected by Mr. Faxon in Newton, Massachusetts.

Foreign Correspondence.

Berlin Letter.

NOT long ago a meeting of German forest-officers was held at Cassel, and one of the subjects discussed was the naturalization of foreign forest-trees in Germany. Some foresters have been opposed to the introduction of exotic trees, while others have urged that tests should be made to determine whether the acclimatization of certain species would not be possible and profitable. These tests have been insisted upon because it is only by experiments that any true idea of the value of foreign trees for us can be obtained. The study of their growth in their native countries has little value for us because a profitable growth is the product of so many influences which differ widely from those surrounding them at home. After some less important tests made by the possessors of private forests in the year 1882 there was founded under the direction of the Government stations for various trials of this sort in all the German states. In the kingdom of Prussia alone there have been paid out in these eight years $80,000 and nearly 1,500 acres have been planted with foreign trees. The delegates from Bavaria and Brunswick gave the results of similar experiments from their countries, which were generally successful.

The exotic trees tested may be arranged in three groups, as follows: 1. Those whose success has been demonstrated, including the Douglas Fir, the Tideland Spruce (*Picea Sitchensis*), Lawson's Cypress, Red Cedar (*Thuja gigantea*), Black Walnut, Shellbark, Mocker-Nut and Bitter-Nut Hickories and the Red Oak. 2. Those which excel German trees only in certain districts, including the Pitch Pine, the Red Cedar (*Juniperus Virginiana*), Nordmann's Fir, Sugar Maple and Black Birch. 3. Such as do not grow or are not worth cultivating, as *Pinus Jeffreyi*, *Pinus ponderosa*, Red Ash, White Maple, the California Maple, the Pig-Nut Hickory and the Big Shellbark (*Hicoria sulcata*). Allow me to add to this that there are some varieties of Douglas Fir which will not grow here at all, some which suffer from low temperature, and others which are among the best coniferous trees we have. The same is true of Lawson's Cypress. In the winter of 1879 and 1880 we had a good stock of this tree at Proskau, in upper Silesia, each plant being a fine specimen six feet high. In February snow fell to the depth of three feet and the temperature sank to thirty-two degrees below zero Fahr. Every tree died down to the snow line, but all started well the following year from the part below the snow, which had remained healthy. In the same winter the Pin Oaks did well. I cannot understand why such an unfavorable opinion of the Black Birch was expressed, as it reaches a large size in St. Petersburg, and it does not suffer in a temperature many degrees below zero. Seedlings of the White Maple, too, I have found to resist a cold of the same intensity.

The fruit-growing industry of northern Germany is beset with many difficulties, the chief of them now being the high railway rates, which prevent the transportation of fruit to

Fig. 74.—Solidago speciosa.—See page 560.

southern Germany, where large quantities are used. This market is supplied from Austria because of lower prices, although the north German fruits are of better quality, and would be used if the railway rates were cheaper. Horticulture, too, is suffering much from natural and artificial causes. The countries which border Germany have high duties on imports, while Germany has none ; therefore the German nurserymen are prohibited from exporting, but the neighboring countries can send in cut flowers, vegetables and pot-plants at such low rates that it is impossible to compete with them. The horticulturists are urging upon the Reichstag the establishment of duties, but meanwhile the Berlin Horticultural Society has been

doing what it could to help by establishing horticultural experiment stations, out of its own funds, at which investigations are to be made to ascertain if there are feasible methods of raising plants and vegetables in a shorter time or at a lower price by the use of artificial manures. It is to be hoped that the state will create a larger station with similar objects. A greater disaster was last summer brought upon the nurseries in Saxony by the flood of the River Elbe, which overwhelmed many of them. All the plants in the greenhouses and hothouses, with the exception of *Rhapis flabelliformis*, were lost. The distress has been so great that collections are now taken up throughout the whole empire for the sufferers. Money as well as plants and seeds and cuttings are welcomed. If any German nurseryman in America should read these lines he might help his brethren in the old world by sending money or cuttings to the Vorstand des Verbandes deutcher Handels gärtner at Leipzig. "Die noth ist furchtbar."

It may be of interest to American women to know that more than a year ago a school of gardening for women was established here. It has a three years' course, during which time the general art of gardening is taught theoretically and practically. Opportunity is also afforded for training in any special department of gardening, and a section devoted to landscape-gardening has just been started. The classes have already won some medals at different exhibitions. There is also a ladies' society to encourage plant-growing at home. Its members are wealthy, and they offer gold and silver medals for pot-plants.

Of the floral novelties grown this year the most important is a Begonia which seems to be a cross between the variety Diadema and some other form of *B. Rex*.

Berlin. *Udo Dammer.*

Cultural Department.

Early Chrysanthemums.

THERE seems to be an increasing interest in the effort to secure early blooming large-flowered Chrysanthemums. No doubt if our borders could be filled from late August or early September till hard frosts with satisfactory specimens of these free-blooming, showy plants it would be a great gain. The prospect of success in that direction seems to me slight; and judging from the progress made, and from the nature of the species, it does not seem that good early Chrysanthemums in the open air will ever be abundant in this latitude. The Desgranges (Madame C. Desgranges, G. Wermig and Mrs. Hawkins) are the best of the early large flowering varieties. Madame Desgranges has been cultivated for some years, is of undoubted merit and at present is the most favorable example which can be named of the race. This variety with me is a fair grower, rather dwarf in habit and with a decided tendency to rust. Of course, with care, it may be kept in good condition as to foliage. It is a simple matter to bring it into full bloom in late August or early September, and well grown flowers are very satisfactory if protected. The difficulty is just here—good, deep, full Chrysanthemum-flowers are very quickly ruined by rains or excessive moisture, and need overhead cover; any such cover will make them so delicate that they will be quickly scorched by the torrid sun which often prevails at that season, and usually an early frost will sear plants before the flowers wane if unprotected. On a border under the south side of the house Chrysanthemums are at this writing (November 15th) still in full bloom entirely untouched by frost—we have had five degrees once—and in such a position it might seem that early kinds could be successfully grown. Possibly the culture might be a success if such weather could be depended on, but this is the first time in a decade when such conditions have prevailed, and one chance in ten is scarcely satisfactory. With us killing frosts may be expected any time after September 20th, and after that date protection may be required at any time, though usually plants are safe till October 15th. Now, with the drawbacks as stated, it does not seem worth while to grow a race of flowers which at the best are of inferior merit to the later kinds at the necessary expense of time and trouble, when the space can be used for fine mid-season or late ones.

In the early season, also, Asters are in season, and likely to be more satisfactory. The early Chrysanthemum is not for me, except for a trial of new varieties as a matter of interest, and I am well content to wait till early October, when, with the keen frosty air, one can enjoy the beautiful blooms of Madame Lacroix, Lady Selborne, William Holmes, William Cobbett, M. E. Nichols and others. The Chrysanthemum is surely a cold weather flower, and naturally at its best at that time. To use a homely analogy, it is somewhat like Celery. The early Chrysanthemum is no more like the later ones than the stringy, rank celery of August is like the crisp, nutty celery of late fall. This quality seems inherent in the nature of the plant, and probably can be little changed by cultivation or selection.

Where an effort is made to have successive displays of good showy flowers it would seem that large breadths of Japanese Anemones are more desirable and satisfactory flowers in the same season for such a purpose than the early Chrysanthemums. They are among the choicest and handsomest of hardy plants and the very best of hard weather flowers, preserving their purity and beauty through the severest storms of wind and rain and not affected by an ordinary frost.

Elizabeth, N. J. *G.*

Notes from the Harvard Botanic Garden.

CENTAUREA AMERICANA.—This plant, and its variety, Hallii, are both well worth trying in the garden. They are annuals, natives of the southern states from Arkansas to the border of Mexico. The typical form has a smooth, occasionally branching, stem, which averages about four feet in height under cultivation here. In its natural state it is sometimes six feet high. The alternate, sessile leaves are oblong-lanceolate, and gradually diminish in size until the smallest at the summit measure about one and a half inches in length. The terminal flower-heads measure four inches across when fully expanded, the exterior florets being of a rich rose color, and those of the centre somewhat paler. The flower is handsome, and remains for a considerable time in perfection on the plant or in water. The variety differs from the type in that its growth is slightly more delicate, the leaves approaching ovate-lanceolate, and its flowers are deep purple. Sow the seeds under cover early in spring, in a temperature not lower than fifty degrees. Transplant, when large enough, in a frame where growing heat can be maintained for a time; harden off the seedlings as the weather grows warmer, and finally remove them to good soil in a sunny part of the open garden in late spring. The flowers will appear early in August, and continue to appear until the plants are cut down by frost.

CHRYSANTHEMUM ULIGINOSUM.—This plant, the *Pyrethrum uliginosum* of Willdenow, affords a grateful mass of showy flowers in September and October, and its habit of growth makes it useful in the garden at a time of year when good flowering plants are scarce. It is a native of Hungary and quite hardy in Massachusetts. The stems are from four to five feet high, thickly furnished with sessile, lanceolate, serrate leaves, and branched at the top. A single stem produces from nine to a dozen branches, which in their turn bear, according to strength, from one to four Daisy-like flowers three inches across, and pure white, with bright yellow disc. It is a most useful plant for the back lines of an herbaceous border, and strong clumps dotted about among dwarf shrubs have a telling effect. A soil of medium quality and moderately heavy is the most suitable, for, like most of its kindred, it is a voracious feeder. It is of importance, more for the quantity and quality of the flowers than for the appearance of the plants, that as many as possible of the leaves be kept in healthy condition until the flowers are past their best. This is a task of some difficulty in very dry seasons, because the lower leaves are much inclined to wither and fall in time of drought. A light mulching and occasional supplies of water will be beneficial in such extreme cases.

CROCUS SPECIOSUS.—The showy flowers of this lovely species have a strange look now as they peep above the earth just as the fall frosts come, and very bravely do they withstand the alternation of heat by day and cold by night up to about the middle of October. They are almost three inches across when open in the sun, and it is then that they are most charming. The soft lilac of the segments is profusely marked with diverging and intersecting lines of deep purple, the colors being most distinct and beautiful in the interior. The showy yellow anthers and stigmas of a deeper shade afford a desirable variety of color. The leaves, differing but little from those of vernal Crocuses, appear only in spring. In its native state, according to Baker, the plant is distributed from north Persia and the Caucasus, through the Crimea, to Hungary and Transylvania. It is the most desirable and reliable autumn-flowering species for this climate. Plant the corms in any good garden soil and in a position where they will not be disturbed. They do best and bloom most freely when left to themselves, merely keeping their quarters clear of weeds and covering with soil any corm that seeks the light.

DIANTHUS PLUMARIUS SEMPERFLORENS.—This plant is said to be the result of crossing *D. plumarius* with a Carnation; but whatever its origin, it is a most desirable one. It has proved hardy here, having stood out all last winter with only a slight covering of protecting material. The growth is dense,

but straggling rather than compact, a habit rendering it an admirable subject for the rock-garden. The flowers vary from light to dark rose, with darker band in the centre. They are pleasantly fragrant and sometimes measure almost two inches across. They are flat in general, and invariably single, with the edges irregularly toothed. The mass of bright glaucous foliage forms an appropriate ground for their more brilliant colors. But the best quality of the plant is the freedom and persistence with which the flowers are produced. Since early summer, through storm and drought, up to this first week of November—and we have had several frosty nights—flowers might have been picked any day from the same plants. They are of a deeper color and smaller, but still beautiful and fragrant in this colder weather. Any of the forms may be perpetuated by propagating from cuttings, and, subject to the slight variation already mentioned, the plant may be readily raised from seed. Our plants were raised from seeds forwarded by Mr. W. Thompson, of Ipswich, England, some two years ago. It is a new plant to this country, and, considering the severity of the climate, one with a most promising future.

SOLIDAGO DRUMMONDII.—This species is the last of the Golden-rods to flower. It is a highly ornamental plant, commencing to bloom early in October, and still in flower, though fading somewhat early in November. The stems are rather slender, three to four feet long, and from the weight of the flowers frequently prostrate if not secured by staking. The dark green of the ovate, serrate leaves contrasts well with the vivid yellow of the abundant flowers. Planted freely on a steep bank, that from its situation will not be allowed to get very dry in summer, and allowed to grow in its own way, without tie or prop, the effect is strikingly beautiful. The flowering-stems impart unmatched elegance to floral decorations. The plant likes partial shade and good, retentive soil. It is found from Illinois and Missouri to Louisiana.

TRICYRTIS HIRTA.—This is an interesting Liliaceous plant, commonly called the Toad Lily (in reference to the profusely spotted flowers), and introduced from Japan in 1863. In this locality it is perfectly hardy, with simple or distichously branched hirsute stems from three to four feet high; alternate, stem-clasping, ovate, deeply veined, hirsute leaves, and shortly paniculate axillary inflorescence. The bell-shaped flowers, an inch or more across, are borne on pedicels about an inch long, the divisions being white densely spotted with purple on the upper surface. The conspicuous filaments are similarly marked. The flowers are extremely pretty at short range, produced in large numbers during October and November, and they last until destroyed by severe frost. Those at the top of the stem are the first to develop, and they open downward in succession. The plant likes partial shade and good soil, and will extend rapidly if left to its own way under these provisions. It is most effective in masses of a dozen or more, and when these masses attain large dimensions, as they will in a few years, the roots may be separated late in autumn for fresh plantations. It is possible to propagate more closely by removing the offsets yearly.

Cambridge, Mass. *M. Barker.*

A Michigan Forest of the Present Day.—See page 559.

Notes on Shrubs.

IT usually happens in this latitude that at least three-fourths of the deciduous trees and shrubs lose their leaves by the first week of November. Sometimes, however, there is considerable variability in persistence of foliage even among plants of the same species, although, as a rule, all of a kind may be fairly judged by the behavior of two or three healthy individuals growing under normal conditions.

After several severe frosts the best foliage of all the species of Clematis in the collection is that borne by the Japanese *Clematis paniculata*, which still appears as fresh and green as in

midsummer. *C. Vitalba* is in almost equally fine condition, and *C. Viticella* also maintains a fairly fresh look. The leaves of nearly all the other species have either ripened and fallen or they have been totally or partially destroyed or blackened by frost. None of the species here assume bright autumn colors, but the leaves of a few occasionally have a purplish aspect.

There is no hardy dwarf shrub which surpasses the Yellow-root (*Zanthorhiza apiifolia*) in brilliancy of late autumn foliage, none of which has fallen at the end of the first week of November. The leaves at this time are bright scarlet and orange in color, and this autumnal glow constitutes the chief value of this plant for ornamental planting. It is perfectly hardy, and as it only grows from one to two feet high, and spreads from underground shoots, it is admirably adapted for planting as an under-shrub in open places or at the edges of the shrubbery.

The species of Strawberry-bush (Calycanthus) generally lose their leaves by the end of October, and although they sometimes become yellowish they usually fall without showing much or any autumnal color. Considering the profusion of flowers which it bears, it is surprising how seldom such a hardy species as *C. lævigatus* bears fruit. Very few of the people who are familiar with the strawberry-scented flowers know the rough, stout pods or hips, several inches in length, and filled with large brown seeds. Occasionally a few hips are produced on plants in this region, and they are so formed that they may remain suspended from the branches for a year or more and retain the seeds in a perfectly dry condition and unaffected by the weather. It would be interesting to know the manner of the dispersion of these seeds in the native habitat of the plant in the Alleghanies, and whether anything more than the disintegration of the hips and consequent liberation of the seeds is provided for. If the seeds only escape by the decay of the hips they must retain their vitality for a considerable time.

Among the Barberries the only one that is perfectly leafless by the 1st of November is the Asiatic plant known as *Berberis Amurensis*, but which is often accounted only a geographical variation or form of the ubiquitous *B. vulgaris*. Its stiff, unbending, upright habit, as well as some other minor differences, render it easily distinguishable from the last named and all other kinds. Its upright habit is imitated by another Asiatic species, *B. Sieboldii*, which retains its crimson and orange foliage a little while longer. In the common Barberry persistence and coloration of foliage in autumn depend very much on situation. As a rule, the colors are not very bright, and a good portion of the leaves have fallen by the first week in November; sometimes, however, they maintain a leafy appearance until late in the month. All other species still retain more or less of their foliage; but, except some half hardy evergreen species, none of them hold their leaves so perfectly and with relatively so little change as a plant received from various botanic gardens as *B. Sinensis*, which is still bright green, although showing a little orange and yellow. The beautiful fruited *B. Thunbergii* has lost most of its leaves, which have been conspicuous during several weeks for their bright orange and scarlet coloring.

The fruit of *B. Sinensis* is very similar to that of the common Barberry, being very juicy and pulpy, and also shriveling and losing much of its brightness of color after several freezings. It is also of a much darker red color than the berries of *B. Thunbergii*, which are usually dry and tasteless, and remain bright, fresh-looking, plump and unshriveled throughout the winter. *B. Sinensis* is rather a plant of more slender and graceful habit than the common Barberry, and it differs strikingly from the compact and bushy form of *B. Thunbergii*, which is certainly much more desirable and valuable for strictly ornamental purposes. It is altogether probable that branches of the bright scarlet fruit of the latter will come to be much used as a substitute for Holly in Christmas and other winter decorations. The spiny character of the stems is against such use, but the tenacious clinging of the fruit to the branches which the species possesses is a very desirable quality. As with many other plants, the seed of this Barberry germinates more readily and quickly after being subjected to hard frosts.

Ilex decidua continues to hold all of its leaves in a bright and fresh condition, while those of *I. monticola* have all fallen, as has the foliage of *I. lævigata*, which turns to a clear yellow before it drops. The Black Alder (*I. verticillata*) does not assume any bright autumn color, and now more than half of its partly brown leaves have already fallen, leaving the bright red fruit more conspicuous than ever. There is a bright light yellow fruited form of this species which is well worth planting with the type to give variety and show contrast of colors.

The Japanese *Ilex Sieboldii* is another hardy species which is early deciduous, the leaves assuming a deep reddish purple hue before they fall. The fruit has not yet been produced in abundance here. Although small, the berries are of a deep, dark red color; and the plant promises to be of some ornamental value.

Arnold Arboretum. *J. G. J.*

Quality in Apples.

"THE less definition, the more dispute." This statement must be regarded as an axiom of science; but when we set beside it the old proverb, "There is no disputing about tastes," how shall we approach the subject of this article? This approach must be made mainly from the practical, even the commercial, point of view. The nation's supply of fruit must be produced by its commercial fruit-growers; and as the great bulk of our people are in moderate circumstances, they must be supplied with fruit not too costly for their means. The choicest fruit is not, cannot be, for the multitude, because it cannot be produced in sufficient abundance, nor at a popular price.

Nevertheless, an abundance of fruit can be produced which has qualities good enough to insure a very large demand; and it is important that growers who mean to supply this demand should learn as much as possible about the marketable value of the different varieties.

Apples do not differ from other fruits in regard to this matter of quality, except in this, that very few fruits preserve their quality so long as our late-keeping apples. The buyer gets this class of apples nearer to its best than any other fresh fruit prominent in commerce. Most buyers of apples are in a way judges of the quality of the fruit, and within the limit of their pomological education they may be very good judges. But it is certainly a fact that our most popular apples are generally not the best for eating uncooked. Neither are our best dessert apples always the best for cooking. Nor is the public taste agreed upon a standard of excellence in regard to dessert apples. Beauty, as a confusing element, is to be considered. Handsome apples, even of quite inferior dessert quality, find a ready sale.

There is no apple so good that everybody likes it. In Canada and New England the Fameuse (Snow Apple) ranks with the first in popularity and price, and eminent pomologists allow it place among the first as a dessert fruit. Yet a pomologist in high station writes me that "the Montreal people may consider Fameuse a choice dessert apple, but it is certainly not so considered in the true apple-growing section." Yet Downing says, "It is an excellent apple"; Thomas says, "Much admired as a table fruit for its pleasant and refreshing flavor"; and not to quote further, the fact that it leads in favor for its season in so fastidious a market as that of Boston ought to have considerable weight in estimating its position. Esopus Spitzenburgh is frequently allotted the first position among later apples, but with all its high, rich flavor, its flesh is never soft or mellow, and some will grant it only the first place as a pie and sauce apple. The Newtown Pippin has long led as an export apple of dessert quality, yet many do not like it. Peck's Pleasant has been awarded the very highest position by connoisseurs, yet it has never attained wide popularity. Rhode Island Greening is a favorite of many pomologists, and is extremely popular; but it is only when yellow-fleshed that its merit is conspicuous. A green-fleshed Greening is always inferior. Yellow Bellflower is, when well grown, a superior apple, but otherwise is of little value. The same is to be said of the King of Tompkins, and indeed of very many sorts. Almost every apple-growing section has its apples of local celebrity, little known or esteemed elsewhere.

For the general market, long experience shows that there must be, with the keeping varieties at least, a union of both cooking and dessert quality to ensure general salability. Much more of this fruit is eaten cooked than uncooked, and an apple that will not make good pies stands at a marked disadvantage in the market. It must not only have a good flavor which will stand fire, but it must cook quickly and thoroughly; and an apple that will not answer this requirement can never be popular. The King, the Baldwin and the Greening are leading apples in market, because, along with ease of production, they possess this double utility. Cooking quality, therefore, is of as much importance as dessert quality. In determining the value of the great commercial apples it may, indeed, be said to lead.

The finest dessert apples are sometimes good culinary fruit, but most of them lose part or all of their excellence under the test of fire. So far, they may be regarded as inferior in the fruit market. Their place is on the fancy fruiterer's counter,

to be sold for exactly what they are—table fruit. Some of the very best, notably Pomme Grise, are almost excluded for lack of beauty and size. On the other hand, for apples for the street stands, where immense quantities are sold, beauty is of the first importance, and this, joined with moderate softness of flesh, is of much more consequence than high flavor. From one end of the Mississippi Valley to the other Ben Davis is the omnipresent apple; and much as its quality is denounced in the meetings of our pomological societies, its very denouncers plant it by the quarter section because it sells.

Fruit-growers who have been brought up on Ben Davis, and who have been forced to grow it against their will, are to be pardoned for some violence of feeling against apples of inferior quality; and I seem to notice that it is they who are the severest critics of the apples of north-eastern Europe. They will admit their beauty, as well as the hardiness and productiveness of the trees; but because among them merits equal to those of the Greening and the King have not yet been recognized, their patience will not hold out until time elapses for their careful trial and estimation. They rush into denunciation as a sort of relief, and kick them as a man kicks the cat when he is angry with his wife.

I do not think they are wise in this. Let patience have her perfect work. Of these apples of eastern Europe upward of 250 varieties have been imported and are now under trial. It is an immense task, and nothing but preliminary and tentative reports can yet be made by any one. I have been at work upon them for twenty years, and yet I am unacquainted with the qualities of four-fifths of them. In one-fifth I have found three sorts that I am planting for profit: one, the Yellow Transparent, for summer; another, Prolific Sweeting, for fall, and a third, Longfield, for early winter. A fourth, Bogdanoff, is plainly a keeper, but only this year have I obtained enough of these to give them a preliminary testing as to season and quality. Professor Budd, of Iowa, has the whole list under trial in the college grounds at Ames. From him I have lately received specimens of six large and handsome winter varieties which I am also subjecting to test as above. The fact is now established that all these apples are not early kinds. I trust that patience will be exercised in awaiting the careful trial, vitally necessary in the interest of the cold north, of these hardy, beautiful and productive fruits. They will not hurt anybody, and no one is going to gain any credit that he will not richly earn in the long, laborious and careful efforts needed to assign these fruits to their proper position in our pomological records.

Newport, Vt. *T. H. Hoskins.*

Nematodes Again.

LAST year I made an examination of Coleus leaves to ascertain the cause of the serious blotching of the foliage, but nothing in the nature of a Fungus could be found. The knowledge of Nematodes obtained during the past year suggested a re-examination of the Coleus foliage for microscopic eel-worms. Upon thoroughly dissecting the first leaf-blotch a number of the worms were brought to light, and their presence was constant throughout the large number of leaves examined. Without attempting to identify the species, which, so far as general appearance goes, closely resembles the one on the Violet, Spinach and Chrysanthemum—namely, *Heterodera radicola*—the fact remains, that the worms are there and seem to be the only observed cause of the blackening of the Coleus leaves and their premature falling. The light colored leaves are much more noticeably blotched than the dark red ones, but all sorts seem to be equally the prey of the worms.

Spots or blotches similar to those upon the Coleus were recently found upon all the leaves of a sickly specimen of Lantana growing out-of-doors. Upon examination for some Cercospora—for the spots appeared to have a mould upon them—it was quickly found that here again were the Nematodes. Every spot, large or small, contained many worms, and they were active in the soft parts of the leaf between the upper and lower epiderms. These spots, as those of the Coleus, were bounded quite regularly by the veinlets of the infested leaves, and it is probable that the denser substance of the veins may serve as a check to the spread of the worms throughout the leaf. The roots of the affected Coleus plants contain many galls, and in these the worms may be found in all stages of development. It is hoped that some helmintholo-gist may find this branch of his subject—namely, Nematodes in leaves—of sufficient importance to warrant a study of it. There are many interesting questions that arise concerning the worms beside the extremely practical one that always comes up from every gardener—namely, what shall be done for the trouble? Suspicion of Nematodes may well be aroused whenever leaves are brown in patches and otherwise green when no insect or Fungus can be found.

Rutgers College. *Byron D. Halsted.*

The White-Flowered Perennial Pea.—English periodicals contain considerable information recently regarding this plant (*Lathyrus latifolius albus*) and its propagation by seed. Some writers assert that a large proportion of the seedlings come true—that is, with pure white flowers—from seed. Raising this Everlasting Pea from seed, however, means growing the plants on until the second year to test them as to their color, and this, no doubt, accounts for the high prices demanded in Europe for the plant. But it is surprising that one should go to the trouble of raising seedlings of doubtful color when the genuine plant may be easily propagated by means of cuttings. We have usually cut off the whole of the tops of the plants in fall, using two joints to each cutting, and have invariably found that seventy-five per cent. will root readily, grow rapidly and flower the ensuing summer. After the tops have been cut off, if desired, the root may be lifted and placed in a deep box in a greenhouse, where an abundance of young shoots will appear, and these, if taken off while short and stocky, also root freely. When this plant becomes better known and cheaper we may hope to see it frequently used as a screen plant, for these perennial Peas need support just as Sweet Peas do. They are out of place in a border, for they spread rapidly among other things, and the rain bespatters the flowers with dirt, marring their purity. But if the plant has a chance to climb, a little assistance at starting and good, deep rich soil, the result will be a revelation. One thing to be remembered is, that these Peas, in common with most leguminous plants, transplant badly, and an old plant to start with is not half as good as a young one. It takes a good deal of digging to lift an established root of this Pea, and when replanted the old roots need twelve months in which to become re-established.

South Lancaster, Mass. *E. O. O.*

Young Fruit-trees.—We have never found a better way to judge of the bearing of young fruit-trees, and to decide whether they are bearing too little or too much, than to observe the length of the annual shoots. The treatment is then to be given in accordance with the result of this examination. If the growth is slow, mellow culture or fertilizers will be necessary. If, as generally happens, slow growers bear too much, thin out most or all the fruit when small, which will aid in giving the trees more vigor, and what little fruit there is will be worth more than the numerous small and scrubby specimens. Small growth and too much small fruit go together, and thrifty growth furnishes a few large and fine ones. If the annual shoots are not over a foot long in the early years of fruit-trees, more vigor must be given them. Nothing is better than top-dressing with barn manure late in autumn or early in winter.—*J. J. Thomas, in Country Gentleman.*

Correspondence.

Some Early Wild Flowers.

To the Editor of GARDEN AND FOREST:

Sir.—Although most persons think there are no flowers to be found in our New England woods or fields from the last of November to the first of April, they have been found in this neighborhood in every month in the year. For twenty months in succession, from April, 1879, to November, 1880, some wild plants were in flower near Boston. Colonel Higginson, in his delightful "Out-Door Papers," says: "The first wild flower of spring is like land after sea. The two which throughout the Northern Atlantic States divide this interest are *Epigæa repens* and *Hepatica triloba*." For many years I have thought they blossomed about the same time. The Mayflower does not grow in any quantity near Boston, so that I have not had the opportunity of watching it closely. But my favorite spot for Hepatica, in Middlesex Fells, is only six miles from Boston. When I first collected the flowers here I used to think myself fortunate if I found a good bunch of them on Fast Day. At that time a friend told me he had once found these plants blooming in February. After that, whenever I was near the place on a mild day in winter, I looked for them, and at last, on the 11th of January, 1874, I found several plants in flower, and one out of blossom, with only the involucre and seeds left, indicating that it blossomed in December perhaps. I found it in flower March 21st, 1878; March 7th, 1880; November 30th, 1881; November 30th and December 31st, 1884;

January 2d, 1885. On November 30th, 1886, I found a single plant in bud, and marked the place by breaking the top of a bush by which it grew, and on December 9th, after three or four cold days with the thermometer at about ten degrees, after a three days' snow storm, I found it in blossom under more than a foot of snow.

Since then, having removed to Malden, I have had a better opportunity to watch the plants, and have found them in flower eight months in succession. In 1889, October 20th, November 12th, December 8th; in 1890, January 2d, February 13th, March 30th, April 6th and 20th, May 4th and 7th. When I found it in flower in October I thought it must be earlier than the Epigæa, but a friend to whom I sent one of the flowers, in acknowledging the receipt of it, writes: "My sister found on the same day in early October the Epigæa and fringed Gentian," so that I am still in doubt, as one of the plants which I found on the 20th must have been in flower some days, the petals having fallen from all the flowers but one.

Since writing the above I have learned that the Epigæa was found in flower near Williamstown about the 19th of September, 1878.

Another of our early-flowering plants which has generally been overlooked is the *Ranunculus fascicularis*. This was in blossom in Middlesex Falls, November 10th and 12th and December 8th, 1889.

Malden, Mass. *E. H. Hitchings.*

Recent Publications.

Hooker's Icones Plantarum, volume x., part ii., September, 1890.

This issue of *Hooker's Icones* is principally devoted to figures of new Chinese plants, and is of unusual interest. Several of the plants here first made known are important trees; some represent new generic types, while from the cultural point of view many of them are of special interest to us, as it is more than probable that the plants of western China will flourish in the middle and perhaps northern states as well as in many parts of central Europe. So far as hardy plants are concerned, west central China is the only great field of enterprise which is left unculled, and the collector who follows in Dr. Henry's footsteps, with the view of introducing into cultivation the plants of the mountain region of western China, will reap a rich reward and perform a great service to horticulture.

A mere enumeration of a few of the plants here figured will serve to give an idea of the richness of this Chinese flora and of the treasures which await the enterprising collector: *Tilia Tuan* (*t.* 1926) is a tree described as forty feet high, with ample membranaceous leaves, covered on the lower surface with white stellate tomentum. The bark is used in making shoes. *Tilia Henryana* (*t.* 1927) is a tree described as thirty feet high, with leaves smaller than those of the last, and covered on the lower surface with fulvous pubescence. There is a third new Linden, *T. Oliverii*, from the same region where the Japanese *T. Miqueliana*, already introduced into cultivation from Japan, was also detected by Dr. Henry.

Professor Oliver proposes a new genus, Tapiscia, for a tree which he places provisionally in *Sapindaceæ* on account of the copious albumen of the seed, the presence of conspicuous stipules, and the resemblance of the leaves to those of Euschapis and some other *Staphyleæ*, although the leaves are alternate and the ovary is unilocular and uniovulate. *Tapiscia Sinensis* (*t.* 1928), the only species, is a tree with leaves eight to fifteen inches long, with three to five leaflets, sessile panicles of small, regular, hermaphrodite flowers, and subglobose, dry, indehiscent fruit. The generic name is an anagram of Pistacia, which the dried specimens of this remarkable tree suggested to Professor Oliver.

Fraxinus platypoda (*t.* 1929), with curiously dilated petioles, is a new Ash described as twenty feet high. *Fraxinus retusa*, var. *Henryana* (*t.* 1930), is a form with broader leaflets of a plant previously known from Hong-Kong.

There is a new plant of the Witch-Hazel family, *Sycopsis Sinensis* (*t.* 1931), a genus previously represented by a single species collected many years ago in Khasia. *Cephalotaxus Griffithii* (*t.* 1933), a species previously known from upper Asam and Munnipore, is here first figured from Mr. Faber's Chinese specimens.

Schizophragma, a genus previously represented by a single Japanese species now a familiar object in gardens, is enriched by a second species discovered on Mount Omei by Mr. Faber, for which Mr. Oliver proposes the name of *Schizophragma integrifolia* (*t.* 1934). It is distinguished from the Japanese plant by its more coriaceous leaves, which are not cordate at the base, and by the narrower petaloid calyx-limb of the abortive ray-flowers, these being represented by the more conspicuous rudiment. A curious form of *Fagus sylvatica*, the old world Beech-tree, characterized by very long leaf-stalks, is distinguished as var. *longipes* (*t.* 1936). In *Menispermaceæ* there is a new Cyclea, *C. racemosa* (*t.* 1938). *Populus lasiocarpa* (*t.* 1943), described as a good timber-tree, is common on the mountains at elevations of from four to six thousand feet.

Two new Blackberries are described, *Rubus malifolius* (*t.* 1943) and *R. simplex* (*t.* 1948), and a remarkably anomalous plant, for which a new genus of uncertain relationship, Eucomia, is proposed. The fruit and general aspect of the specimens suggested *Ulmaceæ* to Professor Oliver, but no trace of perianth could be found in the flowers dissected from the small axillary buds. The leaves are destitute of stipules, and "in the cell of the fruit, which survives and includes the solitary seed, there is always present a collateral or nearly collateral pendulous abortive second ovule." This remarkable tree, *Eucomia ulmoides* (*t.* 1950), which is cultivated in the districts of Changyang and Patung, was not seen by Dr. Henry in a wild state. It is of considerable commercial importance, being highly esteemed by the Chinese in their materia medica; and "the most singular feature about the plant is the extraordinary abundance of an elastic gum in all the younger tissues, excepting perhaps the wood proper—in the bark (in the usual sense of the word), the leaves, and petioles and pericarp; any of these snapped across and the parts drawn asunder exhibit the silvery sheen of innumerable threads of this gum." The bark, according to Dr. Henry's notes, "is the most valued medicine of the Chinese, selling at from four to eight shillings a pound. The tree is planted from the seeds and is cut down in the third to the sixth Chinese month and stripped of its bark. During the last twenty years the production seems to be diminishing from Cheshuan, from which it chiefly comes, and the price has increased four or five fold."

A number of interesting and a few handsome Chinese herbaceous plants are figured in this issue, which contains also several new plants, with one new genus, Tisonia, in *Boragineæ*, from South Africa.

Exhibitions.

The Boston Chrysanthemum Show.

THE complaint has been general that this has been a trying year for Chrysanthemums, and yet Boston never before saw such a magnificent array of well-grown plants as those displayed at the annual exhibition last week, and the cut flowers, especially those grown by Mr. S. J. Colman, equaled the plants in quality. The collection of flowers in vases, shown by Galvin Brothers, but also grown by Mr. Colman, made a noteworthy feature of the exhibition, showing the high decorative value of these large Chrysanthemum flowers when properly arranged in large vases.

The prize collection of twenty named plants was exhibited by Mr. Walter Hunnewell, and contained the following varieties, all superb examples of the most intelligent cultivation: Minnie Miller, Hon. John Welch, General Latimer, Empress of Japan, Marvel, Needless, Sachem, Cullingfordii, William H. Lincoln, Diana, Echantresse, Neesima, Mr. John Laing, Norumbega, F. McFadden, Kioto, Fair Maid of Guernsey, Lilian B. Bird, Duchess and Robert Bottomley.

The prize for a specimen plant of a Japanese variety was also awarded to Mr. Hunnewell. The variety shown was Mrs. Alpheus Hardy, and, even without considering the acknowledged difficulty in growing this variety well, it was a splendid plant. It stood five feet high in a twelve-inch pot, and at the top measured five feet in diameter. The head was literally a mass of snowy bloom, and each flower was of fine size, form and substance. Other prizes for plants in pots were awarded to Mrs. Francis B. Hayes, Dr. H. P. Wolcott, Nathaniel T. Kidder, Dr. C. G. Weld and the Bussey Institute.

A rather pleasing feature in this department was the general collection of plants from the Bussey Institute. Having been allowed to grow pretty much as they pleased, and arranged here with faultless taste, they showed that untrained plants have for decorative work a utility and charm with which formal specimens cannot compete. Two varieties, Source d'Or and Minetto, were especially attractive in this group. The former is a Japanese variety, with flowers of deep orange yellow tinged with bronze; the latter a pompone, in which the flowers are of a soft amaranthine purple. In these a single stem had been allowed to run up for some distance, and then a head was formed in the way of a standard. The branches were not trained in any way, and the weight of the flowers caused them to droop gracefully in a cluster on one side, thus forming a very pleasing picture.

The special award of a silver medal to T. D. Hatfield, Mr. Hunnewell's gardener, was an appropriate recognition of his skill as a cultivator of Chrysanthemums. A similar medal, and one equally well merited, was awarded to S. J. Colman.

The seedlings were numerous, but few of them were of sufficient distinctness and value to supplant old favorites. The Society's silver medal for the best seedling of 1889 was won by Arthur H. Fewkes with a variety named Beacon. It was a large loose flower, with petals incurving slightly and pure white. In the same class Mr. S. J. Colman was second with Albert Henry, a very large flower (fully eight inches across), of the Edwin Molyneux style of petal, but only slightly incurved, and nodding instead of erect, thus showing the centre conspicuously. Mr. James Wheeler was third with Mrs. Joseph H. White, a large flower, with petals inclining to a horizontal position, broad, white-margined and deeply tipped with pink. The Appleton medal was awarded to Henry A. Gane for seedlings, and Mr. T. H. Spaulding's seedling, D. D. Farson, received honorable mention.

Mr. George B. Gill exhibited a sport from St. Patrick (Beethoven), with pale yellow petals slightly tipped with red. It was of good form, and sufficiently full and distinct to deserve perpetuation. The poor lasting qualities of the flowers of Mrs. Alpheus Hardy were well brought out during this exhibition. Even upon the plant they do not stand like many other well known white varieties.

A silver medal was awarded to Richard Gardner, gardener to Cornelius Vanderbilt, Newport, Rhode Island, for a new hybrid Calanthe. This plant is the result of crossing *C. Veitchii* and *C. vestita rubro-oculata*, the latter being the seed-bearing parent. The flowers are much larger than those of either parent, and of a much purer white color than those of the latter, with large pale rose blotch at the base of the lip.

Boston. *B.*

The Autumn Exhibition in Philadelphia.

THE exhibition of Chrysanthemums in Philadelphia last week was admirable for the size and vigor of the plants, for the abundance and perfection of the cut blooms, and for the richness, variety and distinctness of the seedlings displayed. It was so well balanced throughout that no special department deserves praise which should not be accorded in equal measure to all the rest, and it is difficult to characterize the show or any part of it without the use of superlatives. The arrangement of the plants in the large hall was very effective. The long tables of Ferns, Palms and other plants with a luxuriance of foliage not only helped to soften the glitter of the flowers, but the collections themselves were of rare merit. The plants exhibited by Thomas Long, gardener to A. J. Drexel, contained many rarities, which were attractive in themselves and arranged with rare skill. Among the choice plants in this collection were specimens of *Heliconia aurea striata, Aglaonema pictum, Spathiphyllum pictum, Dichorisandra musaica* and *Livistona Sinensis aurea*. Hardly less interesting was the table of Palms, Ferns, etc., of Charles D. Ball, Holmesburg, Pennsylvania, which contained nothing but plants taken directly out of the nursery stock. Among them there were no expensive rarities, but their vigor and health and tasteful grouping made them very effective. The collection of the same class of plants grown for ordinary purposes by Mr. H. A. Dreer was equally meritorious, and the assortment of decorative plants by William Joyce, gardener to Mrs. Baldwin, was well worthy to be found in such good company. Besides these masses, the centre of the hall contained many noteworthy specimen Palms exhibited by Thomas Hughes, the gardener to George W. Childs.

But as this was a Chrysanthemum show the interest centered upon these plants and their blooms. Probably no one ever saw a better group of Chrysanthemums than those which took the prize for a collection of twelve plants in twelve varieties, and which were shown by James Verner, gardener to A. J. Drexel. These plants averaged more than six feet in diameter, and upon one of them 300 first-class blooms were counted. As a matter of record it may be well to give the names of this prize list: Miss Mary Wheeler, Grandiflorum, Robert Crawford, Mrs. A. Blanc, Robert Bottomley, Mrs. Frank Thompson, Mrs. W. Sargeant, Puritan, Lilian B. Bird, Mrs. Irving Clarke, Mr. Frank Wilcox. Every one of these plants were models in form and in natural gracefulness, in the perfection of flowers and the health of their foliage. Scores of other plants deserved special mention, but there was no question as to the superiority of this remarkable group. These prize plants were all grown with a single stem branching near the ground, and of course they are more difficult to grow than where several shoots are allowed to come from the same root.

The blooms were shown in the small hall, which contained besides them some Roses and other decorations. Among the best of the decorations was a bank of Orchids, all well-grown and well-flowered plants, and most tastefully arranged by Mr. Evans, of Rowlandville. The twenty-five blooms of Chrysanthemums, one of a kind, which were shown by F. R. Sykes; the hundred blooms, one of a kind, shown by William Tricker, with the fifty blooms in fifty varieties, and fifty blooms in twelve varieties, both by the same exhibitor, were pronounced better than any similar groups ever before shown in this city. Some of the collections of cut sprays, especially a vase containing some half dozen blooms of Lilian B. Bird, were remarkably good. Twelve blooms of the new yellow Henry E. Widener, shown by Ernest Asmus, were noteworthy for their immense size as well as for their perfection of growth. The aggregate diameter of the twelve was said to be more than ten feet. The twelve varieties selected by Mr. Tricker for his prize lot of fifty flowers were John Collins, Lilian B. Bird, Eldorado, Dawn, Mrs. Wanamaker, Grandiflorum, Excellent, Miss Mary Wheeler, Kioto, Mrs. A. Carnegie and Etoile de Lyon. This is the first time the last named flower has been exhibited in Philadelphia, and although these specimens had not reached the size the flower is said to have attained in Europe, it attracted much attention for its good form and good color.

Among the winners of the principal prizes besides those already named were Coles & Whitley, Joseph Heacock, Hugh Graham's Sons, J. W. Colflesh, John M. Cleary, Henry B. Surman, John Shaw, Charles W. Trotter and E. A. Schneider. A special premium was awarded to Julius Roehrs for a new Hybrid Perpetual Rose and a certificate of special merit was given to E. D. Sturtevant for two unopened flowers of the rare *Aristolochia grandiflora*. The flowers at this stage have a striking resemblance to the figure of a swimming water-fowl, so that the common name of "Duck-plant" applied to this Aristolochia is quite appropriate.

Seedling Chrysanthemums were shown in large numbers, and some of very high quality. Some of the large growers do not seem to have as many novelties as usual, but evidently a constantly increasing number of persons are raising a few seedlings, and as a result we find each year some very valuable flowers of marked individual character, not only for exhibition kinds, but in the fancy varieties, of which the French growers have given us so many. The American raisers have been remarkably successful within a very few years in securing very distinct breaks and a number of varieties of very well defined character. The finely imbricated Chinese kinds for some reason have not been done well in the United States, the climate seeming, in the eastern states at least, to be unfavorable to them. Evidently we shall soon have a number of round incurved kinds fully equal to exhibition requirements, and we shall need to make a new class for such as Mrs. Isaac D. Sailer, with which Mr. W. K. Harris won the "Veteran Prize." "Japanese incurved" might be an appropriate name for the class. The flower is a perfectly incurved, flesh-colored ball, very full, and with somewhat narrow florets. Even the bush of these shown was furnished with flowers massive enough to grace the exhibition boards. Mr. John Thorpe was hampered by his distance from the exhibition hall, but his new seedling, George W. Childs, with its soft, rich crimson and large petals, will be enjoyed by many for its rare and much desired shade, as well as its satisfactory form. His reflexed seedling, Ernest Asmus, is quite unique—a bronzy chrome. Peter Henderson & Co. gained a silver medal for Annie May. This flower, which originated with Mr. J. Forsterman, Newtown, Long Island, is a very full primrose yellow, with a bright apricot centre, large and distinct, slightly reflexed. Mrs. T. Monohan had a number of good flowers, and prizes were given to Mrs. I. G. Whilldin, a primrose yellow form of Source d'Or. Black Beauty, of the same grower, also had a prize. It is a deep, full crimson, with lighter reverse well incurved. Mrs. Louis Childs Madeira was a golden yellow Chinese incurved, with a most remarkable solidity, and if well grown it may possibly be very valuable.

Mr. W. K. Harris and Mr. Robert Craig each scored the same number of points on six plants of new seedlings, so nearly were the two fine collections balanced. Mr. A. H. Fewkes, Newton Highlands, Massachusetts, exhibited a few seedlings of promise. Waban, a rose-colored incurved, in the way of Mrs. C. W. Wheeler, was excellent, as was another, a small ball of sulphur yellow, with orange centre.

James Brydon, gardener to Mr. J. Simkins, Yarmouthport, Massachusetts, exhibited some perfectly grown blooms and seedlings, etc. E. A. Wood, West Newton, and H. A. Gane, of the same city, staged very satisfactory seedlings, as did H.

Tong, gardener to Mr. W. L. Scott, of Erie, Pennsylvania. His rose colored flowers, while not large, were distinct and pleasing. Curiously different were the airy blooms of the Massassanqua Garden, Erie, Pennsylvania, and the white Ben d'Or of this selection, very noticeable. Mr. T. H. Spaulding exhibited his valuable novelties which attracted so much attention and gained the prize at the Orange show. He had also Mrs. Frances Spaulding, a fine yellow sort, rich colored, light, but full. Scattered through the exhibition were many other seedling plants of sufficient merit to deserve a special description in almost any other company.

New York. S.

Notes.

The Report of the proceedings of the Boston Convention of the Society of American Florists has been received. It makes an attractive and instructive pamphlet of 140 pages.

It seems curious to read in an Austrian journal that while herbaceous Pæonies are common in England, France and even Germany, they are scarcely ever seen in Austria except in one or two private gardens.

A correspondent calls our attention to the fact that a Ginkgo-tree in the garden of Mr. Robert Johnston, of Providence, has produced crops of fruit since 1887. This tree and its male companion were imported from France in pots in 1849.

Dr. H. Mayr, Professor of Silviculture in the University of Tokio, and author of an important work on the forests of the United States, will return to Europe during the coming year to assume a position in the forest-administration of Bavaria, his native land.

It is said that dried flowers of *Lilium bulbiferum* and *Hemerocallis graminea* are sold in Chinese towns, woven together in braids of some five inches long. They have local renown as a remedy for diseases of the lungs, and are also used by cooks to flavor dishes of meat.

Peter Kieffer, well known as the introducer of the famous Pear which bears his name, died in Roxborough, Philadelphia, on November the 7th. Mr. Kieffer was born in Alsace in 1812, and came to America in 1834. He built up an extensive business, and was widely known as a pomologist.

Some plants which are very susceptible to a chill in the spring when they are young become quite able to endure the frosts of early autumn. We have observed that several plants of *Cobæa scandens*, which cover porches on the south or east sides of a house, still hold their green leaves, and what is more, are showing an abundance of flowers in this latter part of November.

A correspondent of the *Illustrirte Gartenzeitung*, of Vienna, says that in a private garden, of which the exact locality is not given, there bloomed this year for the first time a Clematis of unusual color. It is a hybrid of two years' growth from seed, and the large blossom, more than four and a half inches in diameter, is of a uniform dark crimson, similar to the color of the flowers of *Rubus odoratus*.

The Botanical Garden at Prague, which contained a fine assortment of hardy as well as greenhouse plants, was totally ruined by the great flood which in September last swept away the famous old bridge over the Moldau. For four days the water lay two feet deep above the greenhouses and plantations, and in the lowest parts of the arboretum it remained for ten days, to the entire destruction of almost all the plants.

In commenting on the formal style of gardening which he was so largely instrumental in driving out of fashion, Horace Walpole amusingly says: "In the garden of Marshal de Biron at Paris, consisting of fourteen acres, every walk is buttoned on each side by rows of flower-pots, which succeed in their seasons. When I saw it there were 9,000 pots of Asters or *La Reine Marguerite*—that is to say, what we now call China Asters."

Mr. W. J. Green, horticulturist of the Ohio Experiment Stations, in the summary of his report on Raspberries says that the Black Cap varieties now considered the most reliable are: Gregg, Hilborn, Ohio, Palmer. The red sorts that succeed best generally are Turner and Shaffer; the best for shipping are Brandywine and Marlboro. Muskinghum, Royal Church and Thompson's Early Prolific are the most promising of the newer varieties.

According to the New York *Tribune* the increase of grape production in California has by no means decreased the amount of our importations from foreign lands. On the contrary, while twenty years ago not more than 500 barrels of grapes were annually brought from Spain, this year there will have come from the one port of Almeria alone no less than 180,000 barrels of the fruit. The importations are sold by auction, and bring from $3.50 to $16 a barrel.

The autumn colors of trees and shrubs are so striking that we sometimes overlook the herbaceous plants which add splendor to this season. *Lysimachia clethroides* is something of a weed, but just now a mass of it cannot fail to arrest attention by the rich crimson and yellow of its leaves. The little blue Plumbago, too (*Ceratostigma plumbaginoides*), which was covered until frost with its deep blue flowers, now makes a carpet of crimson deepening into maroon. This is a good plant for half shady places, where some low-growing thing is needed to cover the ground.

A German horticultural journal recently spoke with high approval of the so-called "American Giant Cyclamen," *Dodecatheon Clevelandi*, which, it said, would for the first time be offered to the trade this year by American nurserymen. It is not a Cyclamen, of course, but has gained its popular name from the fact that its large violet-blue flowers, with yellow and black centres, somewhat resemble Cyclamen flowers in shape. It is a native of California, discovered about three years ago, and is a hardy perennial which thrives best in rather shady localities. It bears from six to ten blossoms on a leafless scape about fifteen inches in height.

Worlidge, an English horticulturist who wrote in the year 1677, suggested that the name "Guelder-rose" (still commonly applied to the Snowball, *Viburnum opulus sterilis*) was not improbably a corruption of "Elder-rose," as the flowers of this Viburnum resemble those of the Elder. Some modern etymologists have adopted this explanation, and it seems supported by the fact that the name is perhaps more often written "Gelder-rose" than "Guelder-rose." But others derive the term from an old belief that the flower first came from Guelderland in Holland, and point as evidence to the Dutch name *Geldersche-roos* and the French *Rose de Gueldre*.

An article in a recent number of the *Gardeners' Chronicle* says that the demand for trees for planting has vastly grown of recent years and promises still further to increase in the future. One firm of nurserymen, whose establishment, which is yearly being enlarged, lies not far from Carlisle, now annually plants out more than two million seedling Larches, between two and three million Scotch Firs, one million Spruces, the same number of Corsican Pines and of Austrian Pines, a hundred thousand Douglas Firs, and millions of Thorns, Beeches, Sycamore Maples, Ashes and other hardwood trees. This stock is eventually distributed not only through Great Britain, but through the United States, Canada and the various colonies.

We have elsewhere shown that it is important to give the children of our public schools some elementary instruction concerning trees, and especially the native trees which grow all about them. It is an encouraging sign that lectures on trees and forests now form part of the exercises at teachers' institutes in many places. Mr. Fernow not long ago addressed an audience of 600 teachers at Norristown, Pennsylvania, and this will doubtless inspire a great many familiar talks by a number of these teachers to their pupils. Miss Graceanna Lewis, of Media, Pennsylvania, is prepared to give to schools or private classes a course of four lectures on Oaks, Maples and Beeches, with original illustrations showing the form, size and color of the leaves of each species. The multiplication of such influences and efforts is greatly to be desired.

In the October number of the *Illustrirte Gartenzeitung*, of Vienna, under the caption "The new *Magnolia Fraseri*," we read that "this novelty" bloomed last spring in Philadelphia; that a specimen of it stands in Bartram's garden, in that town, and two others in Germantown, and that one of the latter "yearly blooms in profusion, but has not yet ripened seed." It is true that *Magnolia Fraseri* is not often seen in cultivation, and for this reason the Philadelphia specimens (which show it to be hardy far northward of its native habitat) are of interest to horticulturists. But it is hardly correct to describe as "a novelty" a Magnolia which was discovered by Bartram in 1776, was introduced by him into England in 1786, and was sent by the elder Michaux to France in 1789. Readers of the *Gartenzeitung* may easily be misled into thinking it a genuine novelty of perhaps Japanese origin. Its true home is in the southern Alleghany Mountains, and especially along the streams which flow from the Blue Ridge, the Black and the Big Smoky Mountains. It is there called the Mountain Magnolia or the Long-leaved Cucumber-tree.